

## **Appendix-B**

### **Data Requirement Sheets**

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The following sets of Data Requirement Sheets are required to be filled up by the bidders to aid in the evaluation process. The response shall be brief and to the point and shall be supported by the printed product description and other literature. The DRS duly filled, and the relevant drawings shall also be submitted during the detailed engineering along with the relevant technical brochures.

DRS Form 1(a)

**DATA REQUIREMENTS SHEETS for**  
**OVERHEAD FIBRE OPTIC CABLE**

OPTICAL GROUND WIRE (OPGW) – 24/48

Fiber:

Manufacturer: \_\_\_\_\_

Part #: \_\_\_\_\_

Configuration: \_\_\_\_\_

| <b>CABLE<br/>CONSTRUCTION</b> |                                           |                                           |                                   |
|-------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------|
| <b>Seq</b>                    | <b>Parameter:</b>                         | <b>As per Technical<br/>Specification</b> | <b>As per Bidder<br/>Offering</b> |
| <b>1.</b>                     | No. of Fibers<br>Dual Window Single-Mode: | 24/48                                     |                                   |
| <b>2.</b>                     | Buffer Type:                              | As applicable                             |                                   |
| <b>3.</b>                     | Buffer Tube material                      | As applicable                             |                                   |
| <b>4.</b>                     | No. of Buffer Tubes:                      | As applicable                             |                                   |
| <b>5.</b>                     | No. of Fibers per buffer Tube:            | As applicable                             |                                   |
| <b>6.</b>                     | Expected Cable Life:                      | 25 Year                                   |                                   |
| <b>7.</b>                     | <b>Parameters of OPGW</b>                 |                                           |                                   |
| (i)                           | UTS                                       | In Kgf                                    |                                   |
| (ii)                          | Effective area                            | In mm <sup>2</sup>                        |                                   |
| (iii)                         | Weight                                    | In kg/m                                   |                                   |
| (iv)                          | Diameter                                  | In mm                                     |                                   |
| (v)                           | Modulus of elasticity                     | In kg/ mm <sup>2</sup>                    |                                   |
| (vi)                          | Coeff. Of linear expansion                | In /°C                                    |                                   |
| (vii)                         | Central tube design                       | Al or Steel                               |                                   |

DRS Form 2  
**DATA REQUIREMENTS SHEETS for OPTICAL**  
**FIBRE**  
DUAL-WINDOW SINGLE MODE (DW-SM)

| OPTICAL PARAMETERS                 |                                                                                                                                  |                                                                              |                        |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|
| Seq                                | Parameter:                                                                                                                       | As per Technical Specification                                               | As per Bidder offering |
| 1.                                 | Fiber manufacturer(s)/Type:                                                                                                      |                                                                              |                        |
| 2.                                 | Attenuation Coefficient@ 1310 nm:<br>@ 1550 nm:                                                                                  | $\leq 0.35$ dB/km<br>$\leq 0.21$ dB/km                                       |                        |
| 3.                                 | Point discontinuity @ 1310nm:<br>@ 1550nm:                                                                                       | $\leq 0.05$ dB<br>$\leq 0.05$ dB                                             |                        |
| 4.                                 | Nominal Mode Field Diameter<br>@ 1310 nm:                                                                                        | 8.6 to 9.5 $\mu\text{m}$ ( $\pm 0.6 \mu\text{m}$ )                           |                        |
| 5.                                 | Chromatic Dispersion Coefficient<br>@ 1310 (1288-1339) nm:<br>@ 1310 (1271-1360) nm:<br>@ 1550 nm:                               | 3.5 ps/(nm $\times$ km)<br>5.3 ps/(nm $\times$ km)<br>18 ps/(nm $\times$ km) |                        |
| 6.                                 | Zero dispersion wavelength:                                                                                                      | 1300 to 1324 nm                                                              |                        |
| 7.                                 | Cutoff wavelength:                                                                                                               | $\leq 1260$ nm                                                               |                        |
| Physical and Mechanical Properties |                                                                                                                                  |                                                                              |                        |
| 8.                                 | Bend Performance:<br>(37.5 mm radius, 100 turns) @1310 nm<br>(30 mm radius, 100 turn) @1550 nm<br>(16mm radius, 1 turn) @ 1550nm | $\leq 0.05$ dB<br><br>$\leq 0.05$ dB<br><br>$\leq 0.50$ dB                   |                        |
| 9.                                 | Cladding Diameter<br>(nominal $\pm$ deviation):                                                                                  | 125.0 $\mu\text{m} \pm 1 \mu\text{m}$                                        |                        |
| 10.                                | Polarisation mode dispersion coefficient                                                                                         | $\leq 0.2$ ps/km <sup>1/2</sup>                                              |                        |
| 11.                                | Proof test level                                                                                                                 | $\geq 0.69$ Gpa                                                              |                        |

DRS Form-  
3

**DATA REQUIREMENTS SHEETS for**  
**OPTICAL LINE TERMINATION EQUIPMENT (OLTE)**

Manufacturer: \_\_\_\_\_

Model #: \_\_\_\_\_

| Seq | Parameter:                                                                          | As per Technical Specification                     | As per Technical Specification                     | As per Bidder Offering | As per Bidder Offering  |
|-----|-------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|------------------------|-------------------------|
|     |                                                                                     | <b>STM-4 Equipment</b>                             | <b>STM-16 Equipment</b>                            | <b>STM-4 Equipment</b> | <b>STM-16 Equipment</b> |
| 1.  | SDH hierarchy level:<br>Capacity Aggregate Bit-rate:<br>CEPT E-1 Ports:             | STM-4<br>620 Mbps<br>252 x E1                      | STM-16<br>2480 Mbps<br>1008 x E1                   |                        |                         |
| 2.  | Minimum No. of protected (MSP) directions                                           | Three                                              | Three                                              |                        |                         |
| 3.  | No. of E1 Interfaces per card                                                       | minimum 16                                         | minimum 16                                         |                        |                         |
| 4.  | No. of 10/100Mbps Ethernet Interfaces per card with layer 2 switching               | minimum 8                                          | minimum 8                                          |                        |                         |
| 5.  | Service Channel provision<br>a) Voice Channel<br>b) Data Channel                    | Yes Minimum 1<br>Minimum 1                         | Yes Minimum 1<br>Minimum 1                         |                        |                         |
| 6.  | Cross Connection Capacity (Non-Blocking & bi- directional)<br>High Order: Low Order | 64<br>64                                           | 256<br>128                                         |                        |                         |
| 7.  | Power Supply cards of SDH equipment<br><br>Common Control* Card of SDH equipment    | 1:1 APS or distributed power supply<br><br>1:1 APS | 1:1 APS or distributed power supply<br><br>1:1 APS |                        |                         |

\* = Common Control Cards which are essentially required for the operation of the equipment

DRS Form-4

**DATA REQUIREMENTS SHEETS for**  
**Primary Multiplexer/Drop & Insert Multiplexer**

Manufacturer:

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Model:

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Configuration:

| Seq. | Parameter                        | As per Technical Specification            | As per Bidder Offering |
|------|----------------------------------|-------------------------------------------|------------------------|
| 1.   | Output Aggregate Rate            | 2.048 Mbps<br>+/- 50 ppm                  |                        |
| 2.   | Interface Code                   | HDB3                                      |                        |
| 3.   | Impedance                        | 75 ohms<br>unbalanced                     |                        |
| 4.   | Maximum Insertion Loss           | 6 dB                                      |                        |
| 5.   | Power Supply card of multiplexer | 1:1 APS or<br>distributed<br>power supply |                        |

The detailed DRS for all equipments/items are required to be submitted along with brochures during detailed engineering.

-----End of the Appendix-----